

Planning documents  
Balcony insulation system

## Triflex BIS





## Applications



### Slim design

Since the Triflex BIS Balcony Insulation system has only a low layer thickness, almost all the build-up height available can be used for insulation. A compensating layer applied on top of the insulation to distribute the load ensures a high load-bearing capacity.



**Triflex BIS** is an insulation system specially developed for balconies and roof terraces, which is used in conjunction with the Triflex BTS-P Balcony Waterproofing System.

Older types of buildings in particular are often real energy guzzlers. All-concrete balcony slabs, which transition into heated rooms with no thermal break, cause thermal bridging with all its adverse consequences such as damp and mould. Good thermal insulation can help to eliminate the effect of differences in indoor and outdoor temperature on the living environment. Thermal insulation has the added benefit of improving the living environment and thus the residents' comfort. Heating costs fall because less energy is required.



## Advantages at a glance

### Reduced costs

A completely thermally insulated balcony has no thermal bridges, which reduces heating costs.

### Improved quality of life

Since heat is not being conducted out of the room, the risk of moisture damage and mould formation in indoor spaces is minimised, and the living environment improves.

### Fire safety

Combined with Triflex BTS-P, the Triflex BIS system, S1 variant, is a flame-retardant waterproofing system. The product's fire classification is graded in Class B<sub>fl</sub>-s1 according to DIN EN 13501-1.

### Investment security

A combination of insulation and waterproofing is the best way to get on top of structural problems for good.

### Wide range of applications

Thanks to the low layer thickness of the subsequent Triflex system, Triflex BIS is suitable for use on balconies with low door sills.

# Triflex BIS



## And this is how it's done ...



1. Prepare substrate, e.g., by grinding or milling.



2. Lay vapour barrier and ...



3. ... mark out surface with edging strips.



4. Cut thermal insulation boards to size ...



5. ... and bond to the surface.



6. Seal edges and seams.



7. Cut the wood-fibre cement boards to size, ...



8. ... join with tongue and groove and ...



9. ... bond to the surface. Next, prime with Triflex Cryl Primer 276.



10. Then the Triflex BTS-P waterproofing system is applied.



## Compatible system components

All the Triflex products mentioned in this system are lab-scale and application coordinated as a result of years of experience. This standard of quality ensures optimum results during both application and use.

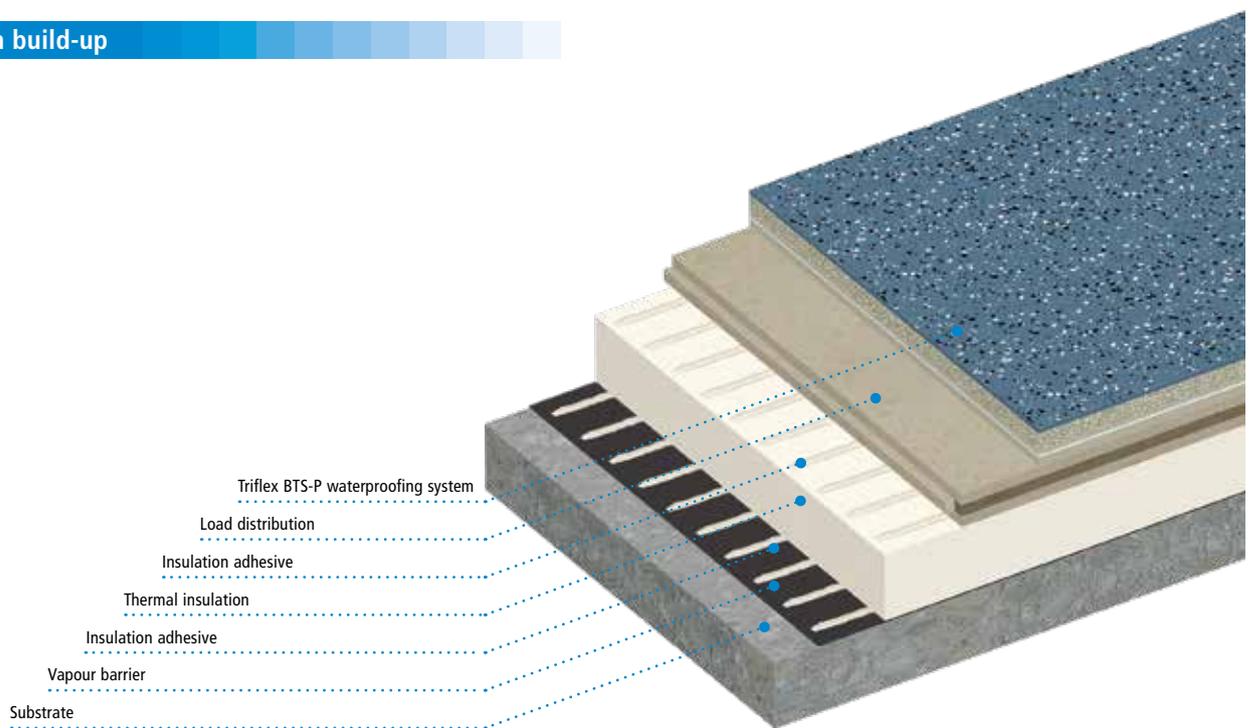


## System description

### Properties

- High-performance insulation
- Full-surface load-distribution layer
- Can be used on almost all substrates
- Mechanically strong
- Low build-up height over the thermal insulation
- Cold-applied
- In combination with Triflex BTS-P (S1), flame-retardant (Class B<sub>fl</sub>-s1 according to DIN EN 13501-1)
- Conforms to DIN 18531 and the ZVDH technical rule for waterproofing (German Flat Roof Guidelines)
- Combined with:  
Triflex BTS-P Balcony Waterproofing System

### System build-up



### System components

#### Thermal insulation

Expanded polystyrene (EPS) boards or polyurethane (PUR) insulation boards with stepped profile laid in insulation adhesive.

#### Load distribution

Load-distribution layer with wood-fibre cement board, 22 mm thick.

#### Waterproofing

The Triflex BTS-P balcony waterproofing system completes the insulation system. Further information on colours and surface designs is available online at [www.triflex.com](http://www.triflex.com).

### Substrate

The suitability of the specific substrate should always be tested on a case-by-case basis.

**Moisture:** When carrying out coating work, the substrate moisture must not exceed 6 % by weight.

Ensure that structural measures are taken to prevent moisture penetration of the coating from underneath.

**Dew point:** During application, the surface temperature must be min. 3 °C above the dew point temperature. Below this temperature, a separating film of moisture can form on the surface.

**Hardness:** Mineral substrates should usually have reached the required standard strength in relation to the building project after 28 days.

**Temperature:** During application and curing of the products the substrate and ambient temperatures permitted for the product must be adhered to. These can be found in the product information.



## System description

### Substrate pre-treatment

The substrate must be sound and dry in order to be able to withstand the compressive loads and stresses that arise and to ensure that no vapour pressure can build up underneath the insulation boards. The product must not be used on loose paving or broken screed. A vapour barrier is required over heated spaces.

For constructional reasons, expansion joints must be adopted in the vapour barrier, thermal insulation and load distribution, and in case of direction changes.

### Vapour barrier

When applying the Triflex BIS system, it is crucial that the substrate is as level as possible.

When selecting the vapour barrier, a bituminous, self-adhesive product should therefore be selected in accordance with DIN EN 13970. We recommend vapour barriers with layer thicknesses of 1.5 mm with aluminium lamination on the upper side and with an equivalent air layer thickness of  $S_d > 1500$  m.

### Thermal insulation

Expanded polystyrene (EPS) boards or polyurethane (PUR) insulation boards with shiplap are used as insulation. The thickness of the layer of insulation is determined in accordance with DIN EN 13163 and DIN 4108 "Thermal insulation products for buildings", as well as the relevant technical code of practice and the thermal insulation regulations.

The site conditions (space available, etc.) must be factored into the planning. Only PUR insulation boards may be used in the S1 variant of the system.

#### Important:

The insulation selected must be suitable for outdoor use (application area DAA) and have a suitable compressive strength (that is, conforms min. to DIN 4108-10). The structural properties must be tested and taken account of on-site.

The selected products must in principle correspond to the product datasheets in the Code of Practice of the German Roofing Trade Association.

### Application on vapour barriers and bitumen substrate:

#### 1. Polyurethane insulation adhesive

As directed by the manufacturer.

#### 2. Thermal insulation boards

Lay and align thermal insulation boards.

Adhesive curing time as stated by the manufacturer.

Fill open joints and gaps with a suitable foam.

### Load distribution

Creating a load-distribution layer with 22 mm wood-fibre cement boards.

#### 1. Polyurethane adhesive

Apply Teroson EF TK 395 polyurethane adhesive to the board.

Apply the adhesive evenly in strips.

Consumption: approx. 40 g/m<sup>2</sup>.

#### 2. Wood fibre cement board

The installation board with tongue and groove is sawn to size, aligned and laid.

The boards can be cut with a hand-held circular saw (e.g. circular saw blade for FiberCement).

Additionally, a seam of polyurethane adhesive Teroson EF TK 395 polyurethane adhesive is applied to the board joints. This seam must be thinly applied underneath the tongue of the board.

Irregularities higher than 3 mm must be sanded flat.

There must not be any open joints or gaps.

Can be recoated after the adhesive cures: approx. 60 min.

Once the adhesive has cured, the installation board may be walked on with care.

#### 3. Triflex Cryl Primer 276

Prime the installation board once with a Triflex Universal Roller to form a film.

Consumption: approx. 0.60 kg/m<sup>2</sup>.

#### 4. Triflex Cryl Paste

If necessary, level the board joints with Triflex Cryl Paste.

Consumption: approx. 0.50 kg/m<sup>2</sup>.

It is not necessary to additionally reinforce the board joints with fleece.

#### Important:

The installation board should only be walked on with extreme care and must be handled carefully during installation.



## System description

### Surface waterproofing

The Triflex BTS-P balcony waterproofing system completes the insulation system. Further information on surface and detail waterproofing, colours and surface designs, is available online at [www.triflex.com](http://www.triflex.com).

### Product information

For information on applications, conditions for use and instructions for mixing, see product information (request if necessary):

**Triflex Cryl Primer 276**

**Triflex Cryl Paste**

**Teroson EF TK 395**

**Wood-fibre cement board** (tested by Triflex)

### Quality standard

All Triflex products are manufactured in accordance with the standards defined in ISO 9001. To ensure quality of workmanship, Triflex products are only installed by fully trained and qualified specialist contractors.

### Wind uplift resistance

Wind uplift resistance must conform to the specifications of DIN 1055 and the technical rules for waterproofing (Flat Roofs Guideline) and the national regulations.

### Gradient / Evenness

Before applying the pattern or decoration, and during application, always ensure the correct gradient and evenness of the substrate. In order to ensure the drainage of rainwater and to avoid puddles, we recommend a gradient of min. 1.5 % on balconies in accordance with DIN 18531-5 and of min. 2.0 % on used roof areas in accordance with DIN 18531-1 and the technical rules for waterproofing systems. Any corrections required must be taken into account during this work.

### Pinholes

Air pockets in concrete or screed go on to cause "pinholes". The mechanical substrate pre-treatment causes the air pockets to open on the surface. The subsequent coating closes the access to the air spaces. The warming of the air inside the pockets as a result of the reaction and ambient temperature causes the volume to expand and the pressure to increase. The air then rises up through the coating to the surface. This is a purely physical process and is not triggered by the coating material itself. In order to prevent the formation of pinholes in the coating, it is recommended that processing be performed when temperatures are falling.

### Dimensional tolerances

When carrying out the work, always ensure compliance with the permissible tolerances for building construction (DIN 18202, Table 3, line 4).

### Safety tips / Accident prevention

Read the safety data sheets before using the products.

### Required consumptions / Waiting times

The volumes required apply only to smooth, even substrates with a maximum roughness of  $R_t = 0.5$  mm.

Special allowance must be made for unevenness, roughness and porosity.

Specified flash times and waiting times apply to a substrate and ambient temperature of +20 °C.

### Information about tools

The Triflex tools mentioned in the system description are a guideline for correct application of the individual functional layers with the respective volumes of product. The use of Triflex tools is not mandatory as long as correct application of the Triflex products is assured.

### General notes

The system descriptions, system drawings and product information sheets form the basis for using Triflex products, and it is essential to follow these when planning and carrying out your building project. Any deviation from the technical information provided by Triflex GmbH & Co. KG that is current at the time the work is carried out may invalidate the warranty. Any project-related deviations require written approval from Triflex.

All the information is based on general regulations, directives and other technical rules. The general regulations applicable in the particular country of use must be respected.

Since the parameters can vary from case to case, the contractor is required to test the suitability, e.g. of the substrate.

Non-Triflex products must not be used in combination with Triflex systems. Triflex reserves the right to make modifications in the interest of technical enhancement or optimisation of Triflex products.

### Tender texts

Please visit the Download section of the Triflex website at [www.triflex.com](http://www.triflex.com) to obtain the current standard specifications, which are available in a range of different file formats. Alternatively, visit the website [www.ausschreiben.de](http://www.ausschreiben.de) or [www.heinze.de](http://www.heinze.de).

### CAD drawings

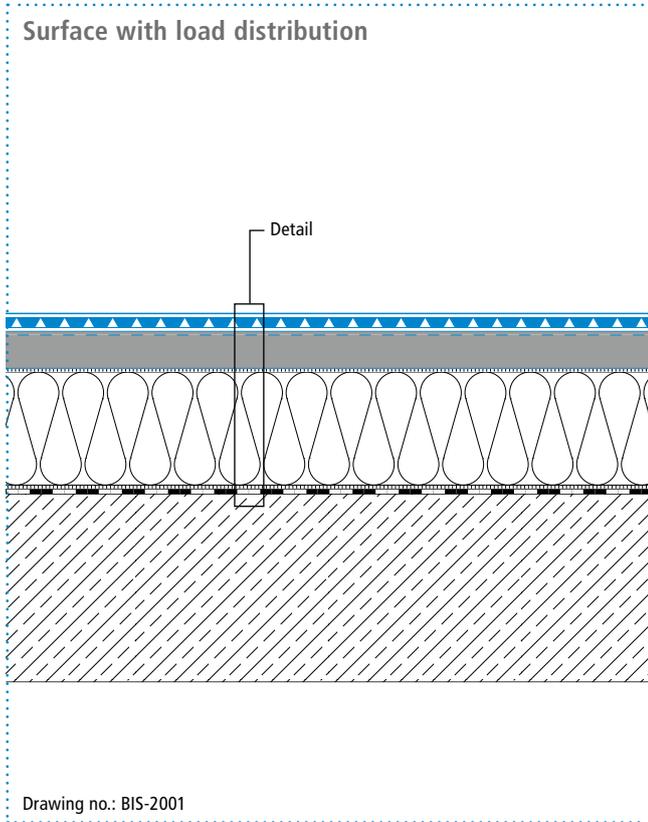
All CAD system drawings can be downloaded free of charge from the Download section of the Triflex website [www.triflex.com](http://www.triflex.com).

Contact us at [technik@triflex.de](mailto:technik@triflex.de) to request further true-to-scale CAD drawings.

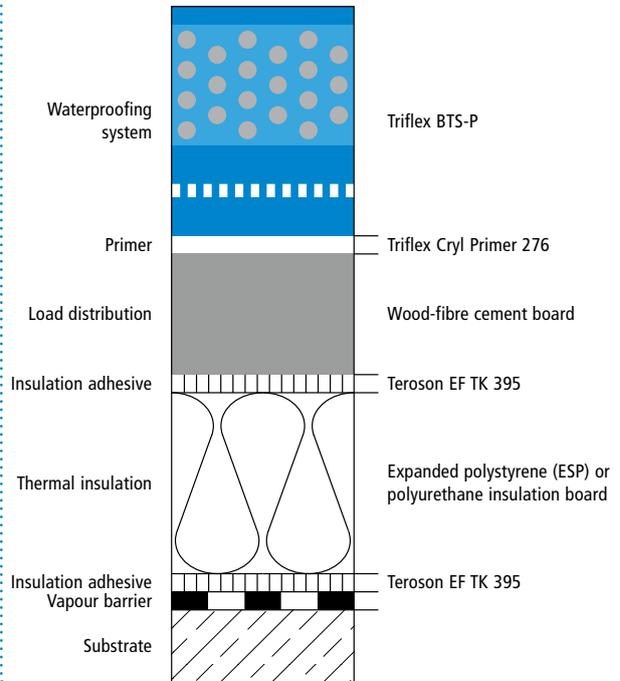


## System drawing

Surface with load distribution



System build-up – Detail





Delivering solutions together.

## Colours

For finishes and colours, see Triflex BTS-P planning documents or colour charts.

### International

Triflex GmbH & Co. KG  
Karlstrasse 59  
32423 Minden | Germany  
Fon +49 571 38780-708  
international@triflex.com  
www.triflex.com

